

information statement

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no evidence to link “toxic gas” from mattresses and SUDI

Rigorously conducted, scientific research has concluded that there is no evidence to support a link between wrapping mattresses and the prevention of Sudden Unexpected Death in Infancy (SUDI).

to Reduce the Risks of Sudden Unexpected Deaths in Infancy (SUDI), including SIDS and fatal sleep accidents, parents should:

1. Sleep **baby on the back** from birth, not on the tummy or side
2. Sleep baby with **head and face uncovered**
3. Keep baby **smoke free** before birth and after
4. Provide a **safe sleeping environment** night and day
5. Sleep baby in their **own safe sleeping place** in the **same room as an adult care-giver** for the first six to twelve months
6. **Breastfeed** baby

The term Sudden Unexpected Death in Infancy (SUDI) is now used as this term refers to all cases of sudden and unexpected death in infancy and includes deaths from Sudden Infant Death Syndrome (SIDS) and fatal sleeping accidents. Safe sleeping recommendations target known risk factors associated with SUDI. Where studies specifically define the population as SIDS, this specific term will be used to describe the study findings.

key points

- Some bedding products have been developed on the basis of a theory proposing that toxic fumes are emitted by cot mattresses and may be associated with SUDI deaths. However, SUDI researchers and paediatric experts consider that there is insufficient scientific evidence to support this theory.
- Red Nose strongly disagrees with the theory as it is unsupported by the evidence.
- Red Nose recommends baby sleeps on a firm, clean, well-fitting mattress that is in good condition to reduce the risk of SUDI and fatal sleep accidents.

The Red Nose Safe Sleeping program has specific recommendations for cot mattresses. The mattress should be firm, clean, well-fitting and in good condition. If the mattress is ill fitting, a baby can get wedged in gaps between the mattress and the cot sides. This is especially dangerous if their head is trapped and face covered, or their neck is restricted in any way. Make sure there is no more than a 20mm gap between the mattress, cot sides and ends. Remove plastic packaging from the mattress before use. Always make sure any waterproof mattress protector is strong and a tight fit. A pillow or cushion is not a safe sleep surface. They are soft and may cover baby's face.

the following presents a summary of the investigations and findings

In 1989, in the United Kingdom, Dr Barry Richardson, made the claim that chemicals in polyvinyl chloride (PVC) and in the fire retardant that is routinely added to cot mattresses in England gave rise to toxic gases. The chemicals were antimony, arsenic and phosphorus.¹ He proposed that these gases, being heavier than air, could pool around a baby sleeping on their tummy (prone) and this would be exacerbated if infants were heavily wrapped as an increase in temperature increases gas generation.

Following the publication of this letter to the Editor of the Lancet, the UK government set up an enquiry into these claims. There was no evidence found to support his claims. On 21 May 1998, the Expert Group to Investigate Cot Death Theories: Toxic Gas Hypothesis, chaired by Lady Limerick and established in 1994 by the UK Chief Medical Officer, presented their final report. Their conclusions were summarised in an article by Dr Susan Beal "... there is no evidence to suggest that antimony or phosphorus containing compound used as fire retardant in PVC and other cot mattress materials are a cause of sudden infant death syndrome."² Contrary to the hypothesis, a large case control study found that babies who slept on PVC mattresses were in fact less likely to die from SIDS than those on other mattresses.³ A second study that repeated the original research was conducted with Dr Richardson's collaboration, but again the findings could not be replicated.⁴ Subsequent reports from large case control studies did not show that wrapped mattresses protect against SIDS.^{3,5}

In February 1997, Dr Jim Sprott, a forensic scientist and consulting chemist, wrote a book which continued Dr Richardson's conjecture. In it, Dr Sprott claimed that there was one single cause of SIDS: gaseous poisoning from mattresses covered in PVC and in mattress fire retardant. He also asserted that the danger escalated if mattresses were re-used. He recommended that any mattress or surface that a baby slept on should be completely wrapped in polythene (not PVC) to his specifications. Dr Sprott's claims received vigorous criticism from major SUDI researchers and paediatric experts who considered that there was insufficient scientific evidence to support the theory. Over the next 20 years Dr Sprott continued to argue his theory⁶ and promote his BabeSafe mattress cover, particularly in New Zealand and Australia.

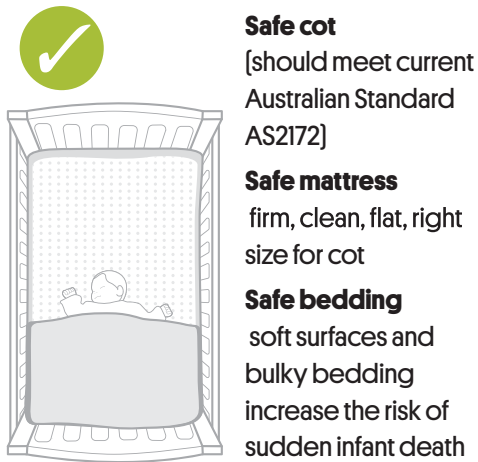
In 2008, Professor Edwin Mitchell, Professor of Paediatrics at the University of Auckland reported that the prevalence of wrapped cot mattresses had remained constant since 1997; however, the incidence of SIDS in New Zealand had declined by 63% from 1994-2004. Thus, the decline in SIDS could not be explained by any changes in the proportion of wrapped mattresses.⁷ Similar falls in SIDS mortality have been reported in many countries since the introduction of "Back to Sleep" campaigns, and these countries have not encouraged mattress wrapping.⁸

Therefore, Red Nose does not support the claims of toxic gas from mattresses and its association with SUDI.

In Australia, between 1990 and 2015 approximately 5,000 babies died suddenly and unexpectedly. Baby deaths attributed to SUDI have fallen by 80% and it is estimated that 9,500 infant lives have been saved as a result of the infant safe sleeping campaigns.

The Safe Sleeping program is based on strong scientific evidence, has been developed in consultation with major health authorities, SUDI researchers and paediatric experts in Australia and overseas, and meets the National Health & Medical Research Council rules for strong evidence.

For further information visit the Red Nose website at rednose.com.au or phone Red Nose on 1300 998 698.



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